

News of Science

Pithecanthropus in Africa?

In the earlier part of this century, Asia was generally regarded as the probable Garden of Eden of man. During the last 20 years, however, numerous and continuing discoveries of fossil primates, human and otherwise, have focused attention on Africa as the probable cradle and nursery of mankind. A plausible common ancestor for man and the apes has emerged from Lower Miocene deposits of Kenya, East Africa. An astonishing series of early Pleistocene, peculiar manlike apes have been blasted from caves of the Transvaal, South Africa. From Kanam and Kanjera, in Kenya, have come controversial and ambiguous fragments of human skulls, regarded by some as testimony of the existence, in the Lower Pleistocene and early Middle Pleistocene, respectively, of the modern or *sapiens* type of man. And from South Africa there are issuing human fossils related to, or at least resembling, beetle-browed Rhodesian man.

The fact remains, however, that the oldest known undisputed remains of actual man have been produced by Asia. *Pithecanthropus erectus* of Java, first discovered in 1891, is now represented by parts of at least six individuals. These fossils date from the earlier part of the Pleistocene epoch. Undoubtedly closely related to *Pithecanthropus*, but slightly later in time, is *Sinanthropus pekinensis*. The first fragments of this early Chinese man were discovered in 1927. Subsequently, until they vanished with the Japanese invasion of China, the remains of some 40 individuals of various ages had been unearthed. The chief difference between these two primitive human forms relates to brain size, which averages approximately 1075 cubic centimeters in *Sinanthropus* but only about 860 cubic centimeters in *Pithecanthropus*. From the morphology of associated limb bones, there is no reason to doubt that both of them walked erect. Primitive stone implements were found associated with the remains of *Sinanthropus* but not with those of *Pithecanthropus*. It must be emphasized that competent students are agreed on the close relationship of these two fossil forms. At most, they are different species of the same genus.

This is not the place, however, to discuss their taxonomic positions. But, for convenience, yet in a purely vernacular sense, they may be collectively referred to as "pithecanthropines."

As noted, the pithecanthropines are Asiatic. The question now arises, following recent discoveries of the remains of early man at Ternifine, Algeria, by Camille Arambourg [*Compt. rend. acad. sci. Paris* 239, 893 (1954); *La Genèse de L'Humanité* (Paris, 1955); *Am. J. Phys. Anthropol.* 13, 191 (June 1955)] whether pithecanthropines may not also have been present in North Africa during the Pleistocene epoch.

The sand pit of Ternifine has been known to students of paleontology and prehistory for a long time. The fossils found in association with the human remains recovered by Arambourg and his associate, Hoffstetter, in June 1954, include hippopotamus, elephant, zebra, giraffe, camel, a variety of antelopes, carnivores (hyena, lion, *Machairodus*, and so forth), a giant wart hog, and a giant baboon. The accompanying lithic industry comprises more than 100 pieces of roughly worked quartzite, silcrete, or limestone with very rare flint. These include primitive Chelleo-Acheulian bifacial hand axes, cleavers, and large Clactonian flakes. Both the fauna and the stone industry have been assigned, by paleontological and archeological criteria, respectively, to the beginning of the Middle Pleistocene (Kamasian stage of Africa).

The human fossils are two lower jaws. Their study has not yet been completed, but it is already possible to establish their essential morphological features. One jaw, almost complete except for some of the teeth, is remarkably robust and is regarded as probably that of a male. The second specimen, consisting of the left half of a mandible minus some teeth, is somewhat smaller but still quite robust; Arambourg regards it as probably female. Neither jaw possesses a chin. Arambourg notes resemblances in bony morphology to the isolated fragment of gigantic lower jaw from the early Pleistocene of Java, termed *Meganthropus palaeojavanicus*, as well as to *Sinanthropus*; and in the teeth, striking resemblances to the pithecanthropines, espe-

cially *Sinanthropus*. Some features remind him of the early Pleistocene manlike apes of the Transvaal, of *Telanthropus* particularly. Since he feels unable to identify them exactly with any known form, Arambourg has assigned a provisional name, *Atlanthropus mauritanicus*, to his Ternifine fossils. However, he concludes that, on the whole, they are very closely related to both *Pithecanthropus* and *Sinanthropus*. In fact, he states quite clearly that he definitely regards them as members of the pithecanthropine group.

I may note that the resemblances of the *Atlanthropus* jaws to *Meganthropus palaeojavanicus* are of considerable interest. In this connection, it is significant that the *Meganthropus* fragment was recovered from Javanese deposits that also yielded specimens of *Pithecanthropus*. Only its monstrous size has debarred it from the pithecanthropines; there is nothing else in its morphology that would seriously justify its exclusion from that group. It would appear that, relative to size, the larger of the two Ternifine mandibles tends to go far in bridging the gap between *Meganthropus* and *Pithecanthropus*. Thus, if the Ternifine jaws are actually those of pithecanthropines, *Meganthropus* loses its isolation and can be reasonably regarded—provisionally, but no more, for it is but a fragment—as a member of the pithecanthropine group of primitive men. Moreover, it would seem to indicate—as I have suggested elsewhere—that great variability in jaw size was characteristic of early Pleistocene men.

That any similarities to *Telanthropus* suggest australopithecine affinities can be taken *cum grano salis*. For, protests to the contrary notwithstanding, the taxonomic status of the fragments termed *Telanthropus* is far from settled. It is anything but established that their possessors were australopithecines.

The final question: Were pithecanthropines present in North Africa in Middle Pleistocene times? On the basis of the Ternifine mandibles, this appears likely but not certain—no more certain, indeed, than the identification of *Meganthropus palaeojavanicus* as an undoubted pithecanthropine. For it must be realized that neither jaws alone, nor teeth alone, nor jaws plus teeth alone, can with assurance make the man—no more than braincase alone or face alone. Of this we now have ample testimony in the "suspense list" of paleoanthropology—from Hong Kong, from Sangiran, from Kanam, from Kanjera, from Heidelberg, from Swanscombe, from Fontéchevade. "Suspended judgment is the greatest triumph of intellectual discipline" (W. K. Brooks).

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